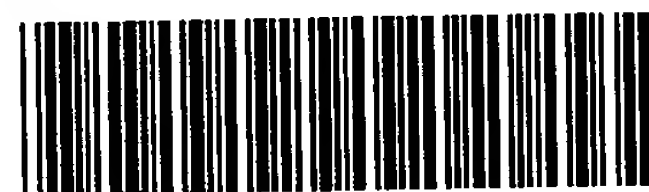


**ENTERED**  
see page 6

0590  
0606

# 10



OIPE

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/989,339

DATE: 06/10/2002

TIME: 15:44:01

Input Set : A:\BB-1067USCNT SEQ LST corrected.txt

Output Set: N:\CRF3\06102002\I989339.raw

3 <110> APPLICANT: Falco, Saverio Carl  
4 Famodu, Layo  
5 Rafalski, Jan A.  
6 Ramaker, Michael  
7 Tarczynski, Mitchell C.  
8 Thorpe, Catherine  
10 <120> TITLE OF INVENTION: PLANT METHIONINE SYNTHASE GENE AND METHODS FOR INCREASING  
THE  
11 METHIONINE CONTENT OF THE SEEDS OF PLANTS  
13 <130> FILE REFERENCE: BB-1067-B  
C--> 15 <140> CURRENT APPLICATION NUMBER: US/09/989,339  
C--> 16 <141> CURRENT FILING DATE: 2002-05-31  
18 <150> PRIOR APPLICATION NUMBER: 08/703,829  
19 <151> PRIOR FILING DATE: 1996-08-27  
21 <160> NUMBER OF SEQ ID NOS: 55  
23 <170> SOFTWARE: Microsoft Office 97  
25 <210> SEQ ID NO: 1  
26 <211> LENGTH: 2639  
27 <212> TYPE: DNA  
28 <213> ORGANISM: Zea mays  
30 <400> SEQUENCE: 1

31	caccacccac	ctcccactcc	cagttcaccc	cgctgctcctc	ggcgccadca	ctcctcgtcc	60
32	cccggcgcta	ctcccccgct	ccacggcca	aggaaagatg	gcgtcccata	ttgttgata	120
33	ccctcgcatg	ggcccccaaga	gggagctcaa	gtttgccttg	gagtctttct	gggatggga	180
34	gagcagcgcc	gaggatttgg	agaaagttgc	cactgacctg	aggtctagca	tctggaagca	240
35	aatgtcagaa	gctgggatca	agtacattcc	cagcaatacc	tcgtcgtact	acgaccaggt	300
36	tcttgatacc	acggccatgc	ttggcgctgt	cccagagcgc	tactcttgga	ctggaggcga	360
37	gattggcttg	agcacctact	tctctatggc	caggggaaat	gccactgtcc	ctgccatgga	420
38	gatgaccaag	tggtttgata	caaactacca	ctttattgtc	cctgaacttg	gtccaagcac	480
39	caagttcaca	tacgcttctc	acaaggctgt	ttctgagtac	aaggaggcaa	aggcgctcgg	540
40	cattgataca	gtcccagtgc	ttgttggaac	agtctcatac	ttgctcctct	ctaagcctgc	600
41	caaggggtgtg	gagaaatctt	tctctcttct	ttcacttctt	ggtagcattc	ttcccatcta	660
42	caaggagggtt	gttgctgagc	tgaaggcagc	tgggtgcttca	tggattcagc	ttgatgagcc	720
43	tacccttggtt	aaagaccttg	atgctcacga	attggccgca	ttctcttcag	catatgctga	780
44	actggagtca	tcgttctctg	gattgaatgt	gcttatcgag	acatacttcg	ctgatattcc	840
45	tgctgagtc	tacaagaccc	tcacatcatt	gagtgggtgtg	actgcttacg	gtttcgatct	900
46	tatccgtgga	gccaagaccc	ttgatcttat	caggagcagc	ttcccctctg	ggaagtacct	960
47	cttcgctggt	gttgtagatg	gacgcaacat	ttgggctgat	gatcttgctg	catctcttag	1020
48	cactcttcat	tctcttgagg	ctggttgctg	caaggacaaa	cttggtggtgt	caacctcctg	1080
49	ctcactgatg	cacaccgctg	ttgaccttgt	aaatgagact	aagctggatg	atgagattaa	1140
50	gtcatggctt	gcatttgctg	ccaaaagggt	tggtgaggtt	aatgcccttg	ccaaggcttt	1200
51	ggcaggccaa	aaggatgagg	tctactttgc	agccaatgct	gctgctcagg	cctcaaggag	1260
52	atcatcgccc	agggtgacaa	acgaggaggt	ccagaaggct	gcagctgctt	tgaggggatc	1320
53	tgaccaccgc	cgttctacca	ctgtttctgc	tagattggat	gctcagcaga	aaaagctcaa	1380

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/989,339

DATE: 06/10/2002

TIME: 15:44:01

Input Set : A:\BB-1067USCNT SEQ LST corrected.txt

Output Set: N:\CRF3\06102002\I989339.raw

```

54 ccttcctgtc cttcccacaa ccacaattgg ttcatccct cagactgtgg aactcaggag 1440
55 ggttcgccgt gaatacaagg caaagaagat caccgaggac gaatacatca gtgccatcaa 1500
56 ggaagaaatc agcaaggctg tcaagatcca agaggagctt gacattgatg tgcttgtgca 1560
57 tggagagcca gagagaaatg acatgggttg gtacttcggg gagcaattat ctgggttttg 1620
58 gttcactgcc aacggatggg tgcaatccta tggatcacgc tgtgtgaagc caccattat 1680
59 ctacgggtgat gtcagccggc cgaaccccat gactgttttc tggccaaga tggcacagag 1740
60 catgaccct cgtcccatga agggaatggt gactggtcg gtcacaatcc tcaactggtc 1800
61 attcgtcagg aacgaccagc ctaggtttga gacatgctac caaatagctc ttgcaatcaa 1860
62 aaaggaggtt gaggatcttg aggtgctgg tattcagggtg atccagatcg atgaggcagc 1920
63 tctaaggag ggtctgccac tacgcaagtc agagcatgca ttctacctgg actgggctgt 1980
64 ccactctttc aggatcacca actgcggagt ccaggacacc acccagatcc acaccacat 2040
65 gtgctactcc aacttcaacg acatcatcca ctccatcatc gacatggatg ccgatgtgat 2100
66 cagcatcgag aactcccggt ctgacgagaa gctactgtcc gtcttccgtg aggggtgtaa 2160
67 gtacggagct ggcattggcc ctgggtgtcta cgacatccac tctcctagga ttccctccac 2220
68 agaggagatc gcagaccgcg tcgagaagat gctcgccgtg ttcgacacca acatcctctg 2280
69 ggtgaaccct gactgtggtc tcaagacacg caagtacacg gaggtcaagc ccgccctgac 2340
70 caacatggtc tcggccacca agctcatccg caccagctt gccagcgca aatgaggctg 2400
71 tttgatagct ccatggctctg atagcgcgga atgagccagt tgttttgaat aatttgggtg 2460
72 ttacccctg ttccatgggtg ttagtgtag gttagcctct cattgggtgag atacgccgtt 2520
73 tcaagatgtg ttctaagttt ggagtgtgtg ttttcctttg ggctatgttt ctgggggtat 2580
74 gtgtgtgctt tggttataaa cagaaatgaa atatgcagtc ttccaattga aaaaaaaaa 2639

```

76 &lt;210&gt; SEQ ID NO: 2

77 &lt;211&gt; LENGTH: 765

78 &lt;212&gt; TYPE: PRT

79 &lt;213&gt; ORGANISM: Zea mays

81 &lt;400&gt; SEQUENCE: 2

```

82 Met Ala Ser His Ile Val Gly Tyr Pro Arg Met Gly Pro Lys Arg Glu
83 1 5 10 15
85 Leu Lys Phe Ala Leu Glu Ser Phe Trp Asp Gly Lys Ser Ser Ala Glu
86 20 25 30
88 Asp Leu Glu Lys Val Ala Thr Asp Leu Arg Ser Ser Ile Trp Lys Gln
89 35 40 45
91 Met Ser Glu Ala Gly Ile Lys Tyr Ile Pro Ser Asn Thr Ser Ser Tyr
92 50 55 60
94 Tyr Asp Gln Val Leu Asp Thr Thr Ala Met Leu Gly Ala Val Pro Glu
95 65 70 75 80
97 Arg Tyr Ser Trp Thr Gly Gly Glu Ile Gly Leu Ser Thr Tyr Phe Ser
98 85 90 95
100 Met Ala Arg Gly Asn Ala Thr Val Pro Ala Met Glu Met Thr Lys Trp
101 100 105 110
103 Phe Asp Thr Asn Tyr His Phe Ile Val Pro Glu Leu Gly Pro Ser Thr
104 115 120 125
106 Lys Phe Thr Tyr Ala Ser His Lys Ala Val Ser Glu Tyr Lys Glu Ala
107 130 135 140
109 Lys Ala Leu Gly Ile Asp Thr Val Pro Val Leu Val Gly Pro Val Ser
110 145 150 155 160
112 Tyr Leu Leu Leu Ser Lys Pro Ala Lys Gly Val Glu Lys Ser Phe Ser
113 165 170 175
115 Leu Leu Ser Leu Leu Gly Ser Ile Leu Pro Ile Tyr Lys Glu Val Val

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/989,339

DATE: 06/10/2002

TIME: 15:44:01

Input Set : A:\BB-1067USCNT SEQ LST corrected.txt

Output Set: N:\CRF3\06102002\I989339.raw

116		180		185		190
118	Ala	Glu	Leu	Lys	Ala	Ala
119		195		200		205
121	Thr	Leu	Val	Lys	Asp	Leu
122		210		215		220
124	Ala	Tyr	Ala	Glu	Leu	Glu
125	225			230		235
127	Glu	Thr	Tyr	Phe	Ala	Asp
128				245		250
130	Ser	Leu	Ser	Gly	Val	Thr
131				260		265
133	Lys	Thr	Leu	Asp	Leu	Ile
134				275		280
136	Phe	Ala	Gly	Val	Val	Asp
137		290		295		300
139	Ala	Ser	Leu	Ser	Thr	Leu
140	305			310		315
142	Lys	Leu	Val	Val	Ser	Thr
143				325		330
145	Leu	Val	Asn	Glu	Thr	Lys
146				340		345
148	Phe	Ala	Ala	Gln	Lys	Val
149				355		360
151	Ala	Gly	Gln	Lys	Asp	Glu
152		370				375
154	Ala	Ser	Arg	Arg	Ser	Ser
155	385					390
157	Ala	Ala	Ala	Ala	Leu	Arg
158				405		410
160	Ser	Ala	Arg	Leu	Asp	Ala
161				420		425
163	Pro	Thr	Thr	Thr	Ile	Gly
164				435		440
166	Val	Arg	Arg	Glu	Tyr	Lys
167				450		455
169	Ser	Ala	Ile	Lys	Glu	Glu
170	465					470
172	Leu	Asp	Ile	Asp	Val	Leu
173				485		490
175	Val	Glu	Tyr	Phe	Gly	Glu
176				500		505
178	Gly	Trp	Val	Gln	Ser	Tyr
179				515		520
181	Tyr	Gly	Asp	Val	Ser	Arg
182				530		535
184	Met	Ala	Gln	Ser	Met	Thr
185	545					550
187	Pro	Val	Thr	Ile	Leu	Asn
188				565		570

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/989,339

DATE: 06/10/2002

TIME: 15:44:01

Input Set : A:\BB-1067USCNT SEQ LST corrected.txt  
 Output Set: N:\CRF3\06102002\I989339.raw

```

190 Phe Glu Thr Cys Tyr Gln Ile Ala Leu Ala Ile Lys Lys Glu Val Glu
191           580           585           590
193 Asp Leu Glu Ala Ala Gly Ile Gln Val Ile Gln Ile Asp Glu Ala Ala
194           595           600           605
196 Leu Arg Glu Gly Leu Pro Leu Arg Lys Ser Glu His Ala Phe Tyr Leu
197           610           615           620
199 Asp Trp Ala Val His Ser Phe Arg Ile Thr Asn Cys Gly Val Gln Asp
200 625           630           635           640
202 Thr Thr Gln Ile His Thr His Met Cys Tyr Ser Asn Phe Asn Asp Ile
203           645           650           655
205 Ile His Ser Ile Ile Asp Met Asp Ala Asp Val Ile Thr Ile Glu Asn
206           660           665           670
208 Ser Arg Ser Asp Glu Lys Leu Leu Ser Val Phe Arg Glu Gly Val Lys
209           675           680           685
211 Tyr Gly Ala Gly Ile Gly Pro Gly Val Tyr Asp Ile His Ser Pro Arg
212           690           695           700
214 Ile Pro Ser Thr Glu Glu Ile Ala Asp Arg Val Glu Lys Met Leu Ala
215 705           710           715           720
217 Val Phe Asp Thr Asn Ile Leu Trp Val Asn Pro Asp Cys Gly Leu Lys
218           725           730           735
220 Thr Arg Lys Tyr Thr Glu Val Lys Pro Ala Leu Thr Asn Met Val Ser
221           740           745           750
223 Ala Thr Lys Leu Ile Arg Thr Gln Leu Ala Ser Ala Lys
224           755           760           765
226 <210> SEQ ID NO: 3
227 <211> LENGTH: 2443
228 <212> TYPE: DNA
229 <213> ORGANISM: Glycine max
231 <220> FEATURE:
232 <221> NAME/KEY: unsure
233 <222> LOCATION: (460)
234 <223> OTHER INFORMATION: n = A, C, G, or T
236 <220> FEATURE:
237 <221> NAME/KEY: unsure
238 <222> LOCATION: (2398)
239 <223> OTHER INFORMATION: n = A, C, G, or T
241 <220> FEATURE:
242 <221> NAME/KEY: unsure
243 <222> LOCATION: (2442)
244 <223> OTHER INFORMATION: n = A, C, G, or T
246 <400> SEQUENCE: 3
247 ccctcagaag cgaagaagaa gccacagaga accagtctcc tactctctct caccacaag 60
248 aaaaatggca tctcacatcg ttggataccc ccgcatgggt cccaagagag agctcaagtt 120
249 cgctctcgag tctttctggg atggcaagag cagcgccgag gatttgcaga aggtggctgc 180
250 tgatctcagg tcatccatct ggaagcagat ggctggtgct gggatcaagt acatccccag 240
251 caacactttc tcgttctatg accagctgct cgacgccacc gccaccctcg gtgccgtccc 300
252 cccaggtac ggctggaccg gcggcgagat tggattcgac acctacttct ccatggccag 360
253 aggtaatgct accgtgctg ctatggagat gaccaagtgg ttcgacacca actaccactt 420
W--> 254 tattgtcct gaattgggcc ctgatgtgaa cttcacctan gcttctcaaa aggctgttga 480

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/989,339

DATE: 06/10/2002

TIME: 15:44:01

Input Set : A:\BB-1067USCNT SEQ LST corrected.txt

Output Set: N:\CRF3\06102002\I989339.raw

```

255 tgaatacaag gaggccaaagg cgcttggagt ggataccatt cccgtactcg ttggccctgt 540
256 tacatacttg ttgctctcca agcctgccaa gggagtcgag aaatcctttt ctctcctctc 600
257 tctccttccc aaggttcttg ctgtctacaa ggaagttatt gctgacctta aggcagctgg 660
258 tgcttcatgg attcaatttg atgagcctac ccttgtcttg gaccttgaat ctcacaagtt 720
259 gcaagctttc actgacgcat atgcagaact tgcacctgct ttgtctgac tgaatgttct 780
260 tgttgagacc tactttgctg acatccctgc tgaggcgtac aagaccctca catctctgaa 840
261 tggcgtcact gcatatgggt ttgatttggt ccgtggaacc catactcttg atttgatcaa 900
262 ggggtggattt cccagtggaa aatacctctt tgctggagtg gttgatggaa ggaacatctg 960
263 ggccaatgac cttgctgctt ctctcactac attgcagggt cttgagggca ttgtgggcaa 1020
264 agataagctt gttgtgtcca cctcctcctc ccttcttcac actgctgttg atcttgtaa 1080
265 cgagaccaag ttggatgacg agatcaagtc atggctagca tttgctgcac aaaaaattgt 1140
266 tgaagttaac gcattggcta aggcattgtc tggcaacaag gatgtggcct tcttctctgc 1200
267 taatgctgca gctcaggctt caaggaagtc ctctccaaga gtgaccaacg aggctgttca 1260
268 gaaggctgct gctgcattga agggttcaga tcatcgccgt gcaacaaatg tcagtgccag 1320
269 actggatgct caacaaaaga agctcaacct tccaatcctt ccaaccacca ctattggatc 1380
270 cttccctcag actgtagaac tgaggagggt acgccgtgag ttcaaggcta acaagatctc 1440
271 cgaggaagag tatgttaagt caattaagga ggaaattcgc aaagtgttg aacttcaaga 1500
272 agagcttgat attgatgttc ttgttcatgg agaaccagag agaatgata tggttgagta 1560
273 cttegggtgag caattgtcag gctttgcctt cactgttaat ggggtgggtgc aatcctatgg 1620
274 ttcccgttgt gtgaagccac caatcatcta tgggtgatgtg agccgccccaa agccaatgac 1680
275 tgtcttctgg tcatctctgg ctcatagctt taccaagcgc ccaatgaagg gaatgcttac 1740
276 cggtcctgtt accattctca actggtcctt tggtagaaat gaccaaccta gatctgagac 1800
277 cacctaccag attgcttttg ctatcaagga cgaagtggag gaccttgaaa aggctggcat 1860
278 cactgttata caaattgatg aagctgcttt gagagagggt ctgccactga ggaaatcaga 1920
279 acaagctcac tacttggact gggctgtcca tgccttcaga atcaccaatg ttgggtgtgca 1980
280 ggataccact cagatccaca cccacatgtg ctactccaac ttcaacgaca tcatccactc 2040
281 catcatcgac atggacgctg atgttatcac cattgagaac tctcgtctcg atgagaagct 2100
282 cctgtcagtc ttccgtgaag gtgtgaagta tgggtgctgga attggccctg gtgtctatga 2160
283 catccactcc ccaagaatac caccaactga agaaatcgct gacagaatca ataagatgct 2220
284 tgcagtgtc gagagaaca tcttgtgggt caaccctgac tgtggtctca agaccgcaa 2280
285 gtacactgaa gtgaagccgc cctcacaaaa catggttgcc gcagcaaaac tcatccgtta 2340
W--> 286 cgaacttgcc aagtgaatgg tataagaaag tagaatctac aagttcaatg ggtccgcntt 2400
W--> 287 taaaatacac caaagaaaaa ttttcaaaat gggttgttca ana 2443

```

289 &lt;210&gt; SEQ ID NO: 4

290 &lt;211&gt; LENGTH: 763

291 &lt;212&gt; TYPE: PRT

292 &lt;213&gt; ORGANISM: Glycine max

294 &lt;220&gt; FEATURE:

295 &lt;221&gt; NAME/KEY: UNSURE

296 &lt;222&gt; LOCATION: (132)

297 &lt;223&gt; OTHER INFORMATION: Xaa = any amino acid

299 &lt;400&gt; SEQUENCE: 4

```

300 Met Ala Ser His Ile Val Gly Tyr Pro Arg Met Gly Pro Lys Arg Glu
301   1               5               10               15
303 Leu Lys Phe Ala Leu Glu Ser Phe Trp Asp Gly Lys Ser Ser Ala Glu
304               20               25               30
306 Asp Leu Gln Lys Val Ala Ala Asp Leu Arg Ser Ser Ile Trp Lys Gln
307               35               40               45
309 Met Ala Gly Ala Gly Ile Lys Tyr Ile Pro Ser Asn Thr Phe Ser Phe

```



RAW SEQUENCE LISTING ERROR SUMMARY  
PATENT APPLICATION: US/09/989,339

DATE: 06/10/2002  
TIME: 15:44:02

Input Set : A:\BB-1067USCNT SEQ LST corrected.txt  
Output Set: N:\CRF3\06102002\I989339.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; N Pos. 460,2398,2442  
Seq#:4; Xaa Pos. 132  
Seq#:7; N Pos. 344,367,433,452,473,474  
Seq#:8; Xaa Pos. 98,117,120  
Seq#:9; N Pos. 219,254,300,319,331,335,338,348,350,360,413,416,424,428,440  
Seq#:9; N Pos. 455,469,473,484,504,506,526,533,535,552,568,580,598,600,606  
Seq#:9; N Pos. 613  
Seq#:10; Xaa Pos. 8,72,73,84,100,106,110,112,116  
Seq#:55; N Pos. 1461,1464,1465

## VERIFICATION SUMMARY

PATENT APPLICATION: US/09/989,339

DATE: 06/10/2002

TIME: 15:44:02

Input Set : A:\BB-1067USCNT SEQ LST corrected.txt  
Output Set: N:\CRF3\06102002\I989339.raw

L:15 M:270 C: Current Application Number differs, Replaced Application Number  
L:16 M:271 C: Current Filing Date differs, Replaced Current Filing Date  
L:254 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:420  
L:286 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:2340  
L:287 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:2400  
L:324 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:128  
L:676 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:300  
L:677 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:360  
L:678 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:420  
L:719 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:96  
L:722 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:112  
L:889 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:180  
L:890 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:240  
L:891 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:300  
L:892 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:360  
L:893 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:420  
L:894 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:480  
L:895 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:540  
L:896 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:600  
L:944 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:0  
L:956 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:64  
L:959 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:80  
L:962 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:96  
L:965 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:112  
L:2148 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55 after pos.:1440